

PLAN IMPLEMENTATION

FUNDING THE PLAN

The plan for accomplishing fuel treatments to mitigate fire risk in Boundary County will be in two parts. The first part will be making grant requests seeking funds to complete needed work. The second part will be assigning work and accomplishing the fuel treatments as described in the plan upon receipt of funds.

During the Assessment Phase, the IFM team identified a large volume of much needed work throughout the urban interface in Boundary County to reduce fire risk. Based on the priorities established in this mitigation plan, the IFM team will continue to seek grants to accomplish the identified needed work.

As the grant funds become available, the IFM Project Manager will begin identifying willing land owners whose properties are within the priority definitions and determining the method by which fuel treatment work will be accomplished.

At this point, estimating the total funds needed to do all priority work is a pretty rough process. Because the fuel modification work will be done only on properties that volunteer to be a part of the program, total properties to treat is only an estimate. For an initial estimate, the team chooses to use these figures:

Estimated home properties—1200. Cost per property--\$1500 to 2000. Needs--\$1,800,000 to \$2,400,000.

Estimated City perimeter—100 acres. Cost per acre--\$1000 to \$1300. Needs--\$100,000 to \$130,000.

Total estimated needs--\$1,900,000 to \$2,530,000.

After one season of work, the team will have a much firmer estimate of the number of home owners who will participate, and the average costs to modify fuels around a home. This information will be used to adjust grant seeking strategies if needed.

MITIGATION WORK

The goal of this plan is to create a defensible space (safe area for fire fighters) and survivable space (sufficient reduction in fire behavior to help the building survive) around any building that is selected for fuel mitigation work. To create a defensible/survivable space, natural forest fuels will be modified to reduce the intensity of fire that would occur if they were to burn. Fuel modification will occur at least up to 100 feet from the perimeter of the building (if property boundaries allow). It will involve the following general kinds of work activities:

1. Remove most shrubs and conifer saplings and pole timber within 30 feet of building.
2. Thin conifer saplings and pole timber to the perimeter boundary so that their crowns are not touching and have room to grow without again becoming interlocking.
3. Prune all trees to the perimeter boundary to one half live crown or to the point that remaining foliage is at least 10 feet off the ground.

4. Prune tall conifers within 15 feet of building to the point that no foliage is below eave line.
5. Mow most shrubs and brush to the perimeter boundary.
6. Thin trees whose crowns are in the main canopy so that the canopy is not continuous and incapable of sustaining a crown fire.
7. Pile for burning, or chip and spread residues from the thinning, mowing and pruning.

Additional work will be prescribed in situations where certain fuel models and conditions exist around the building due to the nature of fire that would occur in periods of high fire danger.

To develop the best prescriptions for defining defensible/survivable space, research was done to determine the boundaries of extreme fire weather that can be expected in Boundary County. Weather records from the weather station at the Bonners Ferry Ranger Station were analyzed. Weather has been recorded daily at this station for many years. A summary was available for the period of 1960 through 2001. We chose to analyze the months of August and September, the period of the highest fire danger in a typical year.

To define the needed zone for defensible space standard fire behavior modeling was done for the most aggressive fuel models in the county. This modeling used two primary factors from the weather records, wind speed and 10 hour fuel moisture.

A 20 foot wind speed of 18mph was selected. This wind speed is near the 97th percentile maximum winds for the period of record for all days in August and September. The selected wind speed is well below those of known events during wild fires. In particular, winds during Firestorm '91 and during the 1985 Swimming Pool Fire were much greater. The selected 20 foot wind (18mph) was reduced to effective wind speed for various slopes using standard fire behavior methodology.

A 10 hour fuel moisture of 3% (97th percentile low for all days) was used in the modeling process.

For fuel models that have a live fuel component, the standard "cured state" live fuel moisture of 50% was used for predictions since the cured stage is usually reached by mid-august in Boundary County.

From these factors, flame length, rate of spread and fire line intensity were calculated for the selected fuel models for several terrain slope classes. This information was used to define the "Safe" defensible/survivable space that should be prescribed for buildings facing those conditions. This information will be helpful to the Project Manager in determining the amount of work needed near any building under consideration. It will help him tailor the prescription to fit the need in critical fuel conditions. It will help to avoid the "one size fits all" prescription that may prove inadequate in severe burning conditions.

The following table shows recommended conditions to exceed the “standard” and to what distance treatment should extend under those conditions.

TABLE 2. FIRE BEHAVIOR OUTPUTS AND RECOMMENDED TREATMENT DISTANCES

F M	SLOPE	EXP	F. L.	R.O.S	F. I.	DISTANCE
2	20	all	9	60	600	150 ft
3	20	all	21	240	3900	200 ft
3	40	all	22	275	4000	200 ft
3	60	all	24	320	5500	200 ft
5	20	exp	11	75	1000	200 ft
5	20	part	9	48	700	150 ft
5	40	exp	11	82	1250	200 ft
5	40	part	9	50	800	150 ft
5	60	exp	13	100	1400	200 ft
5	60	part	10	65	900	200 ft
6	20	exp	9	80	900	150 ft
6	40	exp	10	85	1000	200 ft
6	40	part	9	65	600	150 ft
6	60	exp	11	98	1100	200 ft
6	60	part	10	65	700	200 ft
10	60	exp	11	35	1000	200ft
10	60	part	9	32	700	150 ft

Where FM is Fuel Model; Slope is in percent; EXP is wind exposure of exposed, partial or full; F L is Flame Length in feet; ROS is Rate of Spread in chains per hour; FI is Fire line intensity in BTU/second/square foot; and DISTANCE is the outer perimeter of work from a building for that field condition.

In addition to extending fuel modification due to anticipated fire behavior, under some circumstances, the Project Manager may identify additional work. In looking at various homes in the county, the team has noticed that occasionally there are natural or man made barriers to fire that are logical to tie into to anchor fuel modification work. Some examples include roads, riparian zones or ridge-tops that are just beyond the standard perimeter as defined in this report. In accordance with accepted fire fighting safety dogma, to anchor the line of defense, the team has decided to allow the Project Manager to make the decision to extend modification work to an anchor point where appropriate.